PATENT SPECIFICATION

Application Date: July 19, 1934. No. 21135/34. 441493

Complete Specification Left: June 12, 1935.

Complete Specification Accepted: Jan. 20, 1936.

PROVISIONAL SPECIFICATION

Improvements in the Manufacture and Production of Dyestuff Compositions

I, JAMES YATE JOHNSON, a British Subject, of 47, Lincoln's Inn Fields, in the County of London, Gentleman, do hereby declare the nature of this invention (which has been communicated to me from abroad by I. G. Farbenindustrie Aktiengesellschaft, of Frankfort-on-Main, Germany, a Joint Stock Company organized under the Laws of Germany) to be as follows:—

My foreign correspondents have found that very valuable dyestuff compositions are obtained by mechanically treating, in particular rolling, organic or inorganic pigments, including colour lakes, together with polymerised acrylic acid esters until a sample when dissolved in solvents which are incapable of dissolving the pigments yields a solution from which the pigment practically does not settle, even after standing for long periods of time. It is especially advantageous to subject to the said treatment pigments which have been prepared in the presence of aqueous dispersions of polymerised acrylic acid esters, which consist of mixtures of polymerised acrylic acid esters and pigments.

The dyestuff compositions thus obtainable may be employed as such or in solution. They are distinguished in particular by the capacity for being dissolved alone or together with the usual basic lacquer substances to form lacquers which contain the dyestuff substance in the form or a colloidal or practically colloidal solution and which may be sprayed with a spray piston without difficulty. The compositions dissolve smoothly even in nitrocellulose lacquers having a high content of benzene hydrocarbons and yield thereby lacquers having excellent properties.

The following Examples will further illustrate the nature of this invention but the invention is not restricted to these Examples. The parts are by weight.

EXAMPLE 1.

120 parts of the azo dyestuff prepared from diazotised paratoluidine-meta-sulphonic acid and beta-hydroxynaphthoic acid are dissolved in water, and then 400 parts of an about 20 per cent aqueous dispersion of polymerised acrylic acid ester (obtained by emulsion polymerisation of the monomeric acrylic acid ethyl ester according to the specification No. 358,534) are added. The whole is heated to about 70° Centigrade and a 10 per cent solution of 120 parts of barium chloride is added. After separation and drying, the dyestuff composition is mixed with a small amount of a suitable swelling agent, as for example a mixture of 10 parts of butyl acetate and 10 parts of xylene, and rolled on friction rollers until a sample dissolves to give a clear solution in a colourless nitrocellulose lacquer the solvent mixture of which consists to the extent of 57 per cent of benzene hydrocarbons.

EXAMPLE 2.

150 parts of a 40 per cent dyestuff paste of Prussian blue are stirred with about 1500 parts of water and then mixed with 135 parts of an about 30 per cent aqueous dispersion of polymerised acrylic acid ethyl ester. The mixture then has added to it while stirring 1.3 parts of aluminium sulphate in the form of a 10 per cent solution, coagulation taking place after a short time. After drying, the dyestuff composition, preferably with an addition of a suitable swelling agent, is treated in the manner described in Example 1. A product is obtained which is suitable in an eminent degree for example for the transparent colouration of nitrocellulose lacquers rich in benzene hydrocarbons.

Dated this 19th day of July, 1934.

J. Y. & G. W. JOHNSON,
47, Lincoln's Inn Fields,
London, W.C.2,
Agents.

[Price 1/-]

COMPLETE SPECIFICATION

Improvements in the Manufacture and Production f Dyestuff Compositions

I, JAMES YATE JOHNSON, a British Subject, of 47, Lincoln's Inn Fields, in the County of London, Gentleman, do hereby declare the nature of this invention (which has been communicated to me from abroad by I. G. Farbenindustrie Aktiengesellschaft, of Frankfort-on-Main, Germany, a Joint Stock Company organized under the Laws of Germany) and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

My foreign correspondents have found that very valuable dyestuff compositions are obtained by mechanically treating, in particular rolling, organic or inorganic pigments, including colour lakes, together with water-insoluble polymerised acrylic acid esters such as the methyl, ethyl, propyl or butyl esters, until a sample when dissolved in solvents, which are incapable of dissolving the pigments, yields a solution from which the pigment practically does not settle, even after standing for long periods of time and until a thin layer of the product is more or less transparent. It is especially advantageous to subject to the said treatment pigments which have been prepared in the presence of aqueous dispersions of polymerised acrylic acid esters, and which consist of mixtures of polymerised acrylic acid esters and the pigments.

The dyestuff compositions thus obtainable may be employed as such or in solution. They are distinguished in particular by the capacity for being dissolved alone or together with the usual lacquer base substances to form lacquers which contain the dyestuff substance in the form of a colloidal or practically colloidal solution and which may be sprayed with a spray piston without difficulty. The compositions dissolve smoothly even in nitrocellulose lacquers having a high content of benzene hydrocarbons and yield thereby lacquers having excellent properties.

The following Examples will further illustrate how this invention may be carried out in practice but the invention is not restricted to these Examples. The parts are by weight.

EXAMPLE 1.

120 parts of the azo dyestuff prepared from diazotised paratoluidine-meta-sulphonic acid and beta-hydroxynaphthoic acid are dissolved in water, and then 400 parts of an about 20 per cent aqueous dispersion of polymerised acrylic acid ethyl ester (obtained by emulsion polymerisation of the monomeric acrylic acid ethyl ester according to the specification No. 358,534) are added. The whole is heated to about 70° Centigrade and a 10 per cent solution of 120 parts of barium chloride is added. After separation and drying, the dyestuff composition is mixed with a small amount of a suitable swelling agent, as for example a mixture of 10 parts of butyl acetate and 10 parts of xylene, and rolled on friction rollers until a sample dissolves to give a clear solution in a colourless nitrocellulose lacquer the solvent mixture of which consists to the extent of 57 per cent of benzene hydrocarbons.

EXAMPLE 2.

150 parts of a 40 per cent dyestuff paste of Prussian blue are stirred with about 1500 parts of water and then mixed with 135 parts of an about 30 per cent aqueous dispersion of polymerised acrylic acid ethyl ester. The mixture then has added to it while stirring 1.3 parts of aluminium sulphate in the form of a 10 per cent solution, coagulation taking place after a short time. After drying, the dyestuff composition, preferably with an addition of a suitable swelling agent, is treated in the manner described in Example 1. A product is obtained which is suitable in an eminent degree for example for the transparent colouration of nitrocellulose lacquers rich in benzene hydrocarbons.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A process for the manufacture and production of dyestuff compositions which comprises mechanically treating organic or inorganic pigments, including colour lakes, together with water-insoluble polymerised acrylic acid esters until a sample when dissolved in solvents which are incapable of dissolving the pigment yields a solution from which the pigment practically does not settle, even after standing for long periods of time, and until a thin layer of the product is more or less transparent.

2. The process for the manufacture and product of dyestuff compositions substantially as described in each of the foregoing Examples.

3. A water-insoluble polyacrylic acid ester product, substantially transparent

in a thin layer, containing a colouring matter in a highly dispersed condition so as to give a non-settling solution of about the character of a colloidal solution when dissolved in a solvent which is not a solvent for the colouring matter.

4. Coloured polyacrylic acid ester products, substantially transparent in a thin layer, prepared in accordance with the process particularly described and ascertained or its obvious chemical equivalents.

Dated this 12th day of June, 1935.

J. Y. & G. W. JOHNSON,
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Agents.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1936.